



Document Reviewed—20130227 RM 10 9 Draft Final Design.docx

Comment No.					
Word	NJDEP	Location	Text Highlighted	Comment	Response
General Comments					
1	—	N/A [Title page]	N/A	At the outset, this TCRA was proposed as a way of not only isolating a region of high sediment contamination in the river, but as an opportunity to design, test and evaluate features of this TCRA (dredging, capping, overall success of same) to inform future remedial actions in this river. For these reasons, it is important to appropriately design and conduct monitoring programs to evaluate the success of this remedial action relative to the original objectives and relative to specific contaminants for which this TCRA was initiated.	Agreed. The design document meets the objectives of the Removal Action. The monitoring program will be developed to monitor the Removal Action activities and evaluate the success of the project relative to the objectives.
2	—	N/A [Title page]	N/A	Three items of significance that require expeditious development and submittal for review and approval include: the Water Quality Monitoring Plan (WQMP), which is often referenced in the Final Design report, but not included (nor listed among the Appendices); a detailed Perimeter Air Monitoring Plan (PAM); and the Long Term Monitoring Plan (formerly Appendix K).	A WQMP, Perimeter Air Monitoring Plan, and LTMMP will be developed and submitted to the NJDEP for their review/comment.
3	—	N/A [Title page]	N/A	<b>WQMP-</b> Through review of the 90% Design WP, NJDEP had several specific comments on improved scoping of this work, described in Section 4.6 of Design. Many NJDEP comments are not addressed, as they are deferred to the WQMP, not yet submitted. The TRCA should not move forward without establishment of a surface water quality monitoring program, acceptable to the Regulatory Agencies, that is designed to meet project objectives and is protective of surface water quality in accordance to regulatory requirements in Section 2, ARARs. Two critical outstanding items include the need for specific COPC monitoring (2,3,7,8-TCDD, PCBs and/or other key indicator compounds) in the water column during dredging and resolution on appropriate site-specific TSS and Turbidity Trigger levels and Action levels. These are discussed further under specific comments below.	The Removal Action will not move forward without the development and regulatory approval of the WQMP. The draft WQMP, which was submitted to the NJDEP on April 19, 2013, includes a discussion on the monitoring of COPCs (WQMP, Section 3.2) as well as the trigger/action levels (WQMP, Section 3.1.1.2).



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4	—	N/A [Title page]	N/A	<b>PAM</b> – The need for a PAM was discussed during the Nov. 29, 2012 project planning meeting between CPG and NJDEP. Section II of the subsequent meeting minutes by CPG initially indicated that CPG thought the Department was only concerned with management of odors. We reviewed the minutes and corrected them by clarifying that perimeter air monitoring during dredging activities needs to be performed for key project contaminants such as dioxins, PCBs and Mercury. CPG acknowledged this concern, would consider it, and seek NJDEP input, if needed. Former NJDEP comment 30 on the 90% Design report also stated this need. It is noted that Appendix G, CHASP, Section 4.7, provides a good perimeter air monitoring program framework for managing potential emissions of VOCs, H2S and dust/particulates. In addition, monitoring for COPC is mentioned but not described. Further comments are provided below.	Noted. A Perimeter Air Monitoring Plan based on the information provided in the CHASP is being prepared and will be submitted for review/comment. The plan will discuss the monitoring program for VOCs, H <sub>2</sub> S, and dust/particulates as well as COPCs.
5	—	N/A [Title page]	N/A	<b>Long Term Monitoring Plan</b> – Appendix K was not included in the Final Design Submittal. Based on review of the CPG response to comments, former NJDEP comments have not been addressed, but could be addressed in a forthcoming plan.	The NJDEP’s comments on the LTMP will be addressed in the forthcoming plan.
6	—	N/A [Title page]	N/A	<b>Recommendation:</b> a. The following document should be consulted for development of the WQMP and the Long Term Monitoring Plan, “Long Term Monitoring Strategies for Contaminated Sediment Management, Final Guidance Document”, February 2010, US Navy, as it provides useful direction and tools for these programs. B. Both the WQMP and PAM programs could be submitted in one document, perhaps the Construction Environmental Monitoring Plan (former Appendix E; never submitted and not included among Final Design documents, Feb. 2013). C. An updated Appendix K is needed, as features of long term monitoring are affected by design and implementation of the TCRA and therefore require development at this time. The status of Appendix K is requested.	<div>a. The referenced document will be consulted for the development of the WQMP and LTMMMP.</div> <div>b. The WQMP and PAM will be prepared and submitted as separate documents.</div> <div>c. An updated LTMMMP will be prepared and submitted separate from the Final Design document. The updated document will address the comment provided on this plan.</div>
<b>Specific Comments</b>					
16	1		Design Criteria	Response to Former DEP comments 4b, Word comment 7 (RTC, page 3) – In response to specific NJDEP recommendations on improving Section 4.2 and design/long term success of the cap, the CPG provides a broad statement re-iterating the scope of the TCRA, without regard to the specific conditions mentioned in the original comment. At a minimum, the CPG should address the site conditions described in NJDEP’s comment by describing how current TCRA components are designed, or may be modified, to mitigate this issue.	<div>The Removal Action requires the removal of the top 2 feet of sediment from the capped portion of the Removal Area. The area upriver of Station 32+00, which cannot be capped due to the slope being greater than 3H:1V, will be dredged to native sediment based on the core log data.</div> <div>The cap has been designed on the basis of site-specific conditions (pore water concentrations, seepage velocities) and will be shown to be protective of the environment. The text will be revised to present and discuss the cap design approach using the site-specific data.</div> <div>The characterization data indicate that the post-dredge elevations of the</div>



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					uncapped area upriver of Station 32+00 is to native sediment that has been undisturbed and does not have elevated concentrations of COPCs. As shown in the table below, concentrations of 2,3,7,8-TCDD, for example, dramatically decrease with depth approaching the native sediments. Since dredging will be performed to native sediment, and the data indicate that the native sediment does not have elevated dioxin concentrations, the contaminated sediment will be effectively removed in this region. The text has been revised to include a discussion and summary table (Table 3-2) of this data plus mercury and PCBs.																																																												
					<table><tr><th>Location</th><th>Depth Interval</th><th>2,3,7,8 TCDD (pg/g)</th></tr><tr><td>12E-0365</td><td>0–0.5 ft</td><td>29,000</td></tr><tr><td>12E-0365</td><td>0.5–1.5 ft</td><td>31,000</td></tr><tr><td>12E-0365</td><td>1.5–2.5 ft</td><td>4,030</td></tr><tr><td>12E-0365</td><td>2.5–3.5 ft</td><td>3,280</td></tr><tr><td>12E-0365</td><td>3.5–4.68 ft</td><td>18.2</td></tr><tr><td>12E-0365</td><td>4.68–6.1 ft</td><td>2.86</td></tr><tr><td>12E-0366</td><td>0–0.5 ft</td><td>26,600</td></tr><tr><td>12E-0366</td><td>0.5–1.5 ft</td><td>16,500</td></tr><tr><td>12E-0366</td><td>1.5–2.2 ft</td><td>9,170 (above native sediment)</td></tr><tr><td>12E-0367</td><td>0–0.5 ft</td><td>203</td></tr><tr><td>12E-0368</td><td>0–0.5 ft</td><td>1,070</td></tr><tr><td>12E-0368</td><td>0.5–1.5 ft</td><td>714</td></tr><tr><td>12E-0368</td><td>1.5–2.2 ft</td><td>2.36</td></tr><tr><td>12E-0369</td><td>0–0.5 ft</td><td>7,390</td></tr><tr><td>12E-0369</td><td>0.5–1.5 ft</td><td>1,110</td></tr><tr><td>12E-0369</td><td>1.5–2.75 ft</td><td>3.92</td></tr><tr><td>12A-0481</td><td>0–0.5 ft</td><td>23,200</td></tr><tr><td>12A-0481</td><td>0.5–1.5 ft</td><td>35,600</td></tr><tr><td>12A-0481</td><td>1.5–2.5 ft</td><td>67.8</td></tr></table>	Location	Depth Interval	2,3,7,8 TCDD (pg/g)	12E-0365	0–0.5 ft	29,000	12E-0365	0.5–1.5 ft	31,000	12E-0365	1.5–2.5 ft	4,030	12E-0365	2.5–3.5 ft	3,280	12E-0365	3.5–4.68 ft	18.2	12E-0365	4.68–6.1 ft	2.86	12E-0366	0–0.5 ft	26,600	12E-0366	0.5–1.5 ft	16,500	12E-0366	1.5–2.2 ft	9,170 (above native sediment)	12E-0367	0–0.5 ft	203	12E-0368	0–0.5 ft	1,070	12E-0368	0.5–1.5 ft	714	12E-0368	1.5–2.2 ft	2.36	12E-0369	0–0.5 ft	7,390	12E-0369	0.5–1.5 ft	1,110	12E-0369	1.5–2.75 ft	3.92	12A-0481	0–0.5 ft	23,200	12A-0481	0.5–1.5 ft	35,600	12A-0481	1.5–2.5 ft	67.8
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17	2	CPG Response to Former DEP general comment, Word comment 1, and statements made in Sections 4.4.1 (page 4-6) and 4.4.4 (page 4.9)	Relevant Site Conditions and Impact on Resuspension Risks	CPG Response to Former DEP general comment, Word comment 1, and statements made in Sections 4.4.1 (page 4-6) and 4.4.4 (page 4.9) – CPG concludes that potential impacts to surface water quality resulting from the dredging-associated release of dissolved and colloidal contaminant fractions are not expected. Although this may be the case, it is unknown until tested with appropriately designed sampling. Due to the short duration of this dredging project, the following recommendation is considered <i>optional</i> , but would provide useful information for future similar remedial actions in this river. If, through the existing surface water monitoring program, the “total” COPC constituent concentrations are found to exceed their associated NJ Surface Water Quality Standard, contingency sampling for the dissolved contaminant fractions of metals, and low molecular weight PCB congeners and PAHs, could be implemented. To accomplish this, extra sample volume could be collected and held pending initial sample results.	In addition to TSS and turbidity, the samples collected at Buoys #1 through #4 as well as at RM 10.2 will be analyzed for a range of constituents, including:  <div><input type="checkbox"/> 2,3,7,8 TCDD <input type="checkbox"/> Total PCBS congeners; <input type="checkbox"/> Mercury (total and dissolved) <input type="checkbox"/> Total organic carbon(TOC) <input type="checkbox"/> Dissolved organic carbon (DOC) <input type="checkbox"/> Suspended solids concentration (SSC) <input type="checkbox"/> Total dissolved solids (TDS)</div> Grab samples will be collected from the midpoint of the water column (as measured at low tide) on a weekly basis from Buoys #2 and #3 as well as the RM 10.2 location when dredging and capping operations are being conducted.  The methodology associated with this sampling effort will be provided in a QAPP Addendum.	



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18	3	Former DEP comments 6, Word comment 9 (RTC, page 4) and Section 4.4.1, page 4-6		<p>Response to Former DEP comments 6, Word comment 9 (RTC, page 4) and Section 4.4.1, page 4-6 - The DREDGE Model input parameters assumes dredged material loss rates of only 0.5% and 1%; CPG quotes USACE (2008) to support the use of these sediment resuspension factors. However, USACE (2008; page 160) also includes the following caveats:</p> <ul style="list-style-type: none"><li>□ “Actual resuspension would deviate from the characteristic resuspension as actual site, sediment, and operating parameters deviate from characteristic conditions.”</li><li>□ “... the characteristic resuspension factors should be increased by a factor of two or three for environmental dredging sites when significant quantities of debris are encountered.”</li><li>□ “Additional resuspension will occur from supporting activities such as debris removal, barge/pipe/silt curtain tending, barge/dredge transport (tug operations), and crew operations, which should be included in the overall estimate of resuspension.”</li></ul> <p>Thus, the use of 0.5% and 1% resuspension factors are probably not “conservative” and may underestimate (to an unknown degree) the actual sediment that is resuspended in the dredging area.</p> <p>The DREDGE model results presented in the Draft Final Design Report also assume 0 mg/L TSS as the background in the water column (CPG Response to Comment #6). Thus, the TSS values presented in Table 4-4 are additional TSS that should be added to the average background TSS levels in the water column to evaluate the potential effects of the dredging operation. CPG Response to Comment #15 provides an average background TSS level of 28.9 mg/L. Thus, the data in Table 4-4 indicate that at a distance of 200 meters and 1% sediment resuspension, the additional TSS of 23.1 mg/L resulting from the dredging operation will almost double TSS levels in the water column. This information should be taken into consideration for refining the dredging and monitoring programs.</p>	<p>The RM 10.9 Removal Area is a unique portion of the Lower Passaic River System. As a result, the relevant site conditions were taken into account when estimated the resuspension rate. These included:</p> <ul style="list-style-type: none"><li>□ tidal mudflat with ~30% of area exposed at LMW</li><li>□ Avg water column depth (~4 ft)</li><li>□ Avg Sand content of sediment (29%)</li><li>□ Particle distribution (~46% &gt; 74 micron)</li><li>□ Estimated volume of debris (~5% based on visual observations)</li><li>□ Particle distribution of sediment</li></ul> <p>Therefore, based on the above site specific data a resuspension rate of 0.5 to 1 percent is considered adequate for the project.</p> <p>In addition, the technical specifications include operational requirements (bucket speed, no grounding, limited thrust, etc.) in order to ensure the operations minimize potential resuspension.</p> <p>The DREDGE model conservatively determines the impact of dredging operations on the existing water quality. It uses site specific conditions and assumes that no environmental controls (e.g., silt curtains) are used. DREDGE model results indicate that the TSS concentrations within the water column decrease markedly between 200 m and 400 m downcurrent of the dredging operations. Therefore, the zone of influence associated with the uncontrolled (i.e., having no silt curtain system) dredging operations was assumed to be 300 m. This information was taken into account when determining the near-field monitoring locations.</p> <p>However, in order to determine the appropriate trigger value, site-specific data were used. The existing water quality of the river does not meet the NJDEP water quality requirements; therefore, the dredging operations should be measured against these ambient conditions. The average turbidity value based on a review of observations collected in 2009 and 2010 (~35,700 data points) is 16.4 NTU, with a standard deviation of 20.9 and a range of 0.9 to 363 NTU. Therefore, the proposed trigger value of 35 NTU is considered appropriate for monitoring the dredging/capping activities (16.4 NTU + 20.9 NTU = 37.3 NTU). All of the above information was taken into account when developing the dredging and monitoring programs.</p>	



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15	4	Former DEP comments 13, 11a and b, 14a and b (RTC, pages 5-7)	<div><div><input type="checkbox"/></div><div>Determine potential impacts of dredging contaminated sediment on surface waters and the means to minimize, or otherwise address, these impacts.</div></div> <div><div><input type="checkbox"/></div><div>Identify and minimize/address potential impacts to the environment and public health.</div></div>	<p>Response to Former DEP comments 13, 11a and b, 14a and b (RTC, pages 5-7) – NJDEP suggested COPC monitoring for key chemical indicators during dredging operations. CPG state that “COPC sampling cannot be collected and analyzed in a timeframe that will allow real-time management of dredging operations.” NJDEP understands the project constraints; however, monitoring performs two functions. The first is to provide appropriate feedback to adjust the remedial operations to protect surface water quality, and the second is overall monitoring to document a) environmental conditions during the operation and b) attainment of ARARs. There are measures that can be taken to meet these functions:</p> <p>Option 1: Review the 2009- 2010 RM 10.2 data to see if there is a usable correlation between turbidity, TSS and key chemical constituents. If so, during the planned baseline monitoring, collect 2-3 rounds of these three parameters together to verify this correlation. Once reviewed and approved by the regulatory agencies, this information may prove useful for limiting the amount of chemical constituent sampling needed during dredging and capping operations. If a reliable correlation is not shown, a more intensive chemical constituent sampling program is needed.</p> <p>Option 2: During initial dredging work, collect strategic co-located samples for TSS, Turbidity COPC (dioxin/furans, PCBs, mercury) and POC (particulate organic carbon) and run analyses on an expedited basis. This information may allow development of a correlation between these characteristics (TSS-Turbidity-COPC-POC) during active dredging to enable subsequent monitoring to rely on real-time measurements of Turbidity and/or daily or weekly measurements of TSS, to also represent COPC levels. A minimum of three rounds of comprehensive analysis is recommended. If a reliable correlation is not shown, a more intensive chemical constituent sampling program is needed.</p> <p>Use of these options are important to address bullets 5 and 6, Section 1.2 Removal Action Objectives, and Section 2, ARARs. The Department welcomes discussion on these or other options, for developing the frequency and scope of COPC monitoring work.</p>	<p>As indicated in the draft WQMP the 2009–2010 RM 10.2 data will be reviewed to determine if there is a useable correlation between turbidity/TSS and TSS/COPCs. If a correlation is determined to be present, the baseline monitoring data will be compared to verify this correlation. As the dredging/capping activities will be monitored based on turbidity data, the proposed weekly COPC sampling program is considered appropriate, and a more intensive sampling frequency is not considered necessary.</p> <p>The draft WQMP calls for the sampling of TSS, turbidity and COPC at the two water quality monitoring buoys (#2 and #3) as well as RM 10.2. TSS and turbidity data will be collected daily, and COPC samples will be collected weekly. The data will be reviewed to determine if a reliable correlation can be established.</p>



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7	5	N/A [Title page]	N/A	In addition, in response to former NJDEP comments on this issue, CPG states: “Monitoring of COPC will be conducted as a continuation of the baseline monitoring program.” ... and “ COPC water quality monitoring will be conducted as an extension of the baseline monitoring program and will be sampled/analyzed based on the frequency associated with this program.” However, this provides little information on the program. As indicated above, the scope and details of the COPC monitoring during dredging and capping operations are needed.	The water quality monitoring approach has been provided in the draft WQMP, which was submitted for review/comment on April 19, 2013. This draft plan includes a discussion on the COPC monitoring program for the project.
8	6	N/A [Title page]	N/A	The forthcoming WQMP should include a summary of the 2009/2010 water column data from RM 10.2, as CPG plans to use this information to help form baseline conditions.	A summary of all the 2009–2013 water column data from RM 10.2 will be provided in the WQMP. These data will be used to develop the initial TSS/turbidity relationship and determine if a reliable correlation can be established between TSS/turbidity and COPCs.
9	7	N/A [Title page]	N/A	CPG response to NJDEP comment 14c, Word comment 14 (RTC page 7) is confusing, however, it is anticipated this issue will be addressed in the forthcoming WQMP.	The issue has been addressed in the draft WQMP.
23	8	CPG response to NJDEP comment 12, Word comment 15 (RTC, page 8) and Section 4.6.1.3, page 4-12	Resuspension Monitoring	<p>CPG responseto NJDEP comment 12, Word comment 15 (RTC, page 8) and Section4.6.1.3, page 4-12:</p> <p>a. The text establishes an early warning turbidity “trigger level” of 35 NTU above background. Given that the applicable NJ Surface Water Quality Standard for turbidity is a maximum of 50 NTU at any one time, it is recommended that this “trigger level” be set at a level no greater than 50 NTU. Since the average background turbidity levels in the project area are approximately20 NTU (19.8 NTU, based on RM 10.2 data from 2009 and 2010; CPG Response to Comment #15), this would equate to about 30 NTU above background under “average” conditions (i.e. only 5 NTU less than that proposed in the Draft Final Design Report).</p> <p>b. CPG propose an “action level” of 70 NTU above background, which equates to approximately90 NTU, nearly 2x’s the maximum standard of 50 NTU. If exceeded, dredging will be suspended. CPG Response to Comment #15 and the Draft Final Design Report do not provide any technical basis for this “action level”. It is recommendedthat this action level be established based on the suspended sediment/turbidity and COPC correlation to be developed in the near future, to minimize potential impacts to surface water quality due to elevated chemical pollutant concentrations. CPG propose that monitoring for COPCs would be implemented when the “action level” is exceeded, however, the Draft Final Design Report does not discuss how this monitoring will be conducted. Otherwise, to be protective of surface water quality, dredging should be suspended when the turbidity “trigger level” (discussed above) is exceeded.</p>	<p>a. Water column monitoring data collected at RM 10.2 in 2009–2013 as part of the LPRSA RI/FS indicate that the average TSS concentration was 21.5 mg/L, with a standard deviation of 20.4 mg/L and a range of 1 to 160 mg/L. The average turbidity was 16.4 NTU, with a standard deviation of 20.94 NTU and a range of 0.9 to 364 NTU.</p> <p>While the average turbidity value ls 16.4 NTU, one cannot ignore the deviation in this value. Therefore, the trigger value of 35 NTU above ambient conditions based on the average value plus the standard deviation (16.4 NTU + 20.9 = 37.3 NTU) is considered to be more appropriate.</p> <p>b. The trigger value and onetime maximum of 50 NTU were taken into consideration when developing the Action Level of 70 NTU for the water quality monitoring program. The Action Level was based on the average turbidity value plus the onetime maximum of 50 NTU (16.36 NTU + 50 NTU = 66.4 NTU).</p> <p>c. If the trigger level is exceeded, the dredging/capping operator will be notified, the cause of the exceedances determined, and the BMPs evaluated/revised accordingly. Dredging operations will be allowed to continue when the trigger level is exceeded, but the BMPs will be reviewed as a result of the increased levels. However, when the Action Level is exceeded, the dredging operations will be required to stop until the causes and remedies are determined.</p> <p>The technical specifications have been revised to be consistent with the WQM approach.</p>

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				<p>c. CPG propose that when the early warning “trigger level” is exceeded, dredging will continue and the BMPs listed in Section 4.4.3 (page 4-8) will be evaluated, apparently to determine the cause of the exceedance. However, based on CPG Response to Comment #10, it appears that no action will be taken unless the “action level” is exceeded. As described above, resolution of an appropriate action level for this project is needed.</p> <p>The purpose of the “trigger level” should be to implement additional management actions and BMPs (beyond those listed in Section 4.4.3) to (1) prevent an exceedance of the “action level”, and (2) reduce turbidity levels to below the “trigger level”. CPG Response to Comment #10 lists some such additional management actions – these should be added to the Final Design Report and implemented (as needed) when the “trigger level” is exceeded.</p> <p>The above comments also pertain to Appendix E, Section 31.23.24 – 3.01-E.</p>	
34	9	CPG response to NJDEP comment 34 (RTC, page 11)	RM 10.9 Composite Samples Waste Characterization Profile	CPG response to NJDEP comment 34 (RTC, page 11) – CPG states that there is sufficient dioxin/furan sediment data for disposal purposes. NJDEP agrees; the main point of the former comment was to ensure that appropriate dioxin/furan data are included in the waste profile documentation provided to the off-site facilities used for transporting, handling and disposing of this material. Neither the text of Section 8, nor Table 8-1, Composite Samples Waste Characterization Profile, provided dioxin/furan concentrations. The information in Table 3-1 should be used to represent this contaminant category to off-site facilities. Prior to TCRA implementation, NJDEP requests a copy of the complete waste profile documentation provided to the selected off-site facilities.	The T&D subcontractor requested that TCLP data be provided for every 1,000 tons of in situ sediment. Therefore, additional sediment samples were collected to satisfy this requirement. These data have been used to develop the waste profile for the material. A copy of the disposal facilities acceptance letters was provided to the NJDEP as part of the permit equivalency process.
10	10	CPG response to NJDEP Appendix K, general comment (RTC, page 14)	Appendix	CPG response to NJDEP Appendix K, general comment (RTC, page 14) – CPG’s response does not address the specific recommendations provided; instead, CPG states; “The appendix will be revised to be consistent with the Final Design document.” NJDEP re-iterates original comment; it is anticipated that these comments can be addressed in the forthcoming Appendix K.	The LTMMP will be submitted separate from the Final Design document, and all comments received with respect to LTMMP will be addressed in it.

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11	11	CPG response to NJDEP Appendix K comment 6 (RTC, page17)	Appendix	CPG response to NJDEP Appendix K comment 6 (RTC, page17) – NJDEP disagrees with the CPG response for long term monitoring frequency, for both physical and chemical monitoring. First, NJDEP’s original comment referring to RM 10.9 physical conditions as a need for annual physical monitoring for the first 5 years (versus CPG proposal of every 5 years, in addition to event-based) was based on a number of factors, with the primary ones including the relatively higher sheer stresses and steep slopes in portions of the TCRA capping area versus elsewhere at RM 10.9, and the occurrence of higher frequency, higher intensity storms in recent years. If this were a lake, less frequent sampling may be appropriate. However, for this section of a tidal river near the confluence of another river (Third River), subject to flooding, and subject to high recreational water sports use, increased physical and chemical monitoring is justified and therefore recommended. Second, if, after a series of annual inspections, it is shown that the cap has held up well under these conditions, less frequent physical monitoring may be appropriate. The same may be determined after a good track record of chemical monitoring - - but the track records for both first need to be established through implementation of well-designed testing programs.	See response to Comment #10.
12	12	CPG response to NJDEP Appendix K comment 11b (RTC page 19)	Appendix	CPG response to NJDEP Appendix K comment 11b (RTC page 19) - NJDEP disagrees with the response. Pre-remedial pore water quality is directly relevant to post remedial pore water quality for determining degree of capping success in isolating chemical constituents (i.e., are the design assumptions working?). Although surface water criteria are used for evaluation of surface water quality at the cap, the comparison of pre- and post –remedial <i>pore water data</i> shows degree of remedy success and is a more direct measure of cap integrity. CPG will have the data; why not use it not only for cap design, but for remedy success?	See response to Comment #10.

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13	13	CPG response to NJDEP Appendix K comment 11c (RTC page 19)	Appendix	CPG response to NJDEP Appendix K comment 11c (RTC page 19) - NJDEP disagrees with the response. Pre-remedial pore water sampling should include the primary contaminants of concern, not just the more mobile ones. For this project, Phenanthrene and Mercury were chosen, yet the purpose of this TCRA is to primarily address isolation of 2,3,7,8-TCDD and PCBs, among other compounds (included Phenanthrene and Hg). For this reason, the key chemicals of concern should be tested for in the pre- and post- remedial pore water monitoring.	See response to Comment #10.
14	14	CPG response to NJDEP Appendix K comment 14 (RTC page 20)	Appendix	CPG response to NJDEP Appendix K comment 14 (RTC page 20) - In response to specific NJDEP recommendations on improving Appendix K, (concerning long term monitoring design and cap maintenance triggers), the CPG provides a broad statement: "The objective of this removal action is "to reduce exposure of receptors to, and prevent potentially significant migration of contaminants from [the removal area]." The proposed plan will ensure that the risk of direct exposure is maintained and that COPCs beneath the cap are controlled from entering the bioactive zone of the cap following completion of the dredging/capping works." NJDEP comments are meant to assist development of specific measures to <i>ensure these objectives are met</i> , through development of monitoring programs that can either document remedy success, or identify areas of improvement, if necessary. It is anticipated that NJDEP comments can be addressed in the future version of the Long Term Monitoring Program.	See response to Comment #10.



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39	15	Appendix G, CHASP, Section 4.7, Air Monitoring	Appendix G, Community Health and Safety Plan	Appendix G, CHASP, Section 4.7, Air Monitoring – This section provides a good framework for the perimeter monitoring program needed for this project. However, additional details are needed for final approval. These include: sampling methods and analysis for each component of the program (indicated for some, but not all), the COPCs to be tested, number of sampling locations and locations of same, along with frequency of readings or sample collection (indicated for some, but not all) and listing of action levels (and trigger levels, if appropriate) and <i>basis for same</i> (including references), and parameter specific sample reporting limits (to be below action/trigger levels). In addition, a decision-tree or similar outline is needed for how testing results are to be assessed, along with resulting actions taken. Analysis for Dioxins/Furans should use T0-9A and analysis for PCBs/Pesticides, if selected for testing, should use T0-4A. The PAM should list all the specific testing equipment to be used for real-time measurements, and list or describe sample collection equipment to be used for samples sent for laboratory analysis. Laboratories used for this project are to have the appropriate certifications to perform the required testing. Odor observations should be linked with H2S monitoring. The Department welcomes discussion to shape the PAM.	A separate Perimeter Air Monitoring Plan will be prepared and submitted to the NJDEP for their review/comment. The plan will discuss trigger levels and actions to be taken should those trigger levels be exceeded. The plan will also provide a decision tree and list all the equipment to be used and additional details on the laboratories.
Technical Comments/Questions					
24	1	Section 6.2.4, page 6-3	Stabilization	How will the stabilization operations be conducted if an in-barge processing system is used? [Also see Appendix G, Section 4.4]	The selected subcontractor will use a pugmill system to stabilize the sediment. The text has been revised accordingly.
27	2	Section 7.1.2, page 7-2	Cap Armoring Layer	This sectionstates that a 500-year return flow evaluation was conducted – but the results of this evaluation are not discussed in the Draft Final Design Report. CPG Response to Comment #19 implies that the results of this analysis are included in Section 7.2.2.1, but the Draft Final Design Report does not include this section.	The paragraph referring to the 500-year return flow evaluation was inadvertently deleted in the Draft Final Design. The following paragraph from the Pre-Final Design has been inserted into Section 7.2.2.1:  “If a 500-year return period storm were to be used to design the cap, the minimum <i>D</i> <sub>50</sub> for Armor Stone Types A and B would be 7 in. and 4 in., respectively. The calculated minimum thicknesses of the Armor Stone Types A and B layers would be 16 in. and 9 in., respectively. The corresponding average cap thicknesses would be specified as 18 in. and 12 in., respectively.”

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28	3	Section 7.1.2.1, page 7-2 and Table 7-1	Armor Layer Sizing	<p>The formula from Palermo (1998) used in the Final Design Report calculates the D50 for the cap armor stone. However, Table 7-1 presents the “maximum calculated D50” values for various depth intervals. How are these “maximum” values related to the D50 sizes calculated using the Palermo (1998) equation? And how are these “maximum” D50 values used to determine the design size D50 for the armor stone?</p> <p>If the data in Table 7-1 actually presents the results of the application of the Palermo (1998) equation (and not some “maximum” value), then it appears that the D50 for Armor Stone Type A (to be place at depths below -3.0 feet) should be greater than the design size of D50 = 4.5 inches. Likewise, it appears that the D50 for Armor Stone Type B (to be place at depths above -3.0 feet) should be greater than the design size of D50 = 2 inches.</p>	<p>The following is the corrected Table 7-2:</p> <p>TABLE 7-2 <b>Maximum Calculated Median Armor Stone Size vs. Bottom Elevation</b> <i>RM 10.9 Pre-Final Design Report, Lower Passaic River Study Area, New Jersey</i></p> <table><tr><th>Bottom Elevation (ft)</th><th>Maximum Calculated D<sub>50</sub> (in.)</th></tr><tr><td>&lt; -6.0</td><td>4.1</td></tr><tr><td>-6.0 to -5.0</td><td>3.3</td></tr><tr><td>-5.0 to -4.0</td><td>3.0</td></tr><tr><td>-4.0 to -3.0</td><td>2.6</td></tr><tr><td>-3.0 to -2.0</td><td>1.9</td></tr><tr><td>-2.0 to -1.0</td><td>1.4</td></tr><tr><td>-1.0 to 0</td><td>0.9</td></tr></table>	Bottom Elevation (ft)	Maximum Calculated D <sub>50</sub> (in.)	< -6.0	4.1	-6.0 to -5.0	3.3	-5.0 to -4.0	3.0	-4.0 to -3.0	2.6	-3.0 to -2.0	1.9	-2.0 to -1.0	1.4	-1.0 to 0	0.9
Bottom Elevation (ft)	Maximum Calculated D <sub>50</sub> (in.)																				
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-5.0 to -4.0	3.0																				
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-2.0 to -1.0	1.4																				
-1.0 to 0	0.9																				
26	4	Section 7.1.1, page 7-2	Post-capping Habitat Layer	<p>This section briefly discusses the placement of an additional sand or “approved soil” layer on top of the cap armor; this operation is not addressed in Appendix E Section 02 32 00. Additional discussion concerning the purpose of placing this material, and how it will be placed, are needed. The use of sand or “soil” for such an operation will need the approval of NJDEP, and may require pre-placement chemical testing of the material.</p>	<p>The additional sand or “approved soil” layer on top of the armor cap was requested by USEPA to provide a habitat layer. Appendix E has been revised to be consistent with Section 7.1.1.</p>																

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29	5	Section 7.1.4, page 7-4	Chemically Active Layer and Chemical Containment	<p>One identified option for the active cap layer design is to mix the “chemical sequestering amendments” with the sand layer. This will apparently “create more favorable conditions for reduced diffusion and isolation of COPCs”. Please explain how, for example, mixing activated carbon into the sand layer will reduce COPC diffusion compared to a solid layer of activated carbon placed on top of the sand layer; this appears to be counterintuitive, since the activated carbon particles will be dispersed throughout the sand (unless a much larger mass of activated carbon is used when mixed in the sand layer).</p> <p>Also, note that Appendix E, Section 02 32 00, 1.02-B states that “the active material will be placed on top of the 6 inch thick sand layer”, and (together with sub-section 2.02) will consist of a specified type of activated carbon. [Also see Appendix G, Section 1.2.3.1 and Section 4.6]</p> <p>The Draft Final Design Report and the appropriate appendices should be revised to be consistent with the final cap design.</p>	The active layer design has not been finalized. However, mixing activated carbon within the sand layer is an effective technique for designing an active layer because it decreases the concentration gradients and thus the diffusive forces that drive the COPCs through the cap. This effect is seen in the CapSim modeling results.
30	6	Section 7.1.6, page 7-6	Design Cap Plan and Sections	This section references a Figure 7-2, but this figure was not included in the Draft Final Design Report.	Figure 7-2 was inadvertently missing from the Draft Final Design and has been updated and inserted into the Final Design document.
33	7	Section 8.2, page 8.4	Regulatory Guidelines	This section states that additional sediment sampling and TCLP analyses must be conducted. Are these the activities implemented by the CPG in early 2013, or future sampling?	These samples were collected in late February 2013, and TCLP results are complete. The text has been revised accordingly.
36	8	Section 8.4, page 8-4	Disposal Options	<p>The treatment and disposal of the “excess barge water” are not discussed.</p> <p>CPG/USEPA Response to Comment #48 notes that filtering this water prior to offsite treatment/disposal has been considered, but this is not discussed in the Draft Final Design Report.</p>	The text has been revised to include additional discussion with respect to the excess barge water disposal.
37	9	Appendix E (previous Appendix D), Section 01 45 16, Part 1 – 1.01-B	Appendix E, Technical Specifications	This section and CPG Response to Comment #35 state that separate surface water quality monitoring programs are to be implemented by the CPG and dredging subcontractor. This section of Appendix E provides an “outline” of the subcontractor’s program – the detailed monitoring plan to be submitted to CH2M Hill (Section 1.02-A-1) should also be submitted to the NJDEP for its review and approval. From this “outline”, it appears that the subcontractor will be implementing the surface water quality monitoring program presented in the Final Design Report; if this is the case, what monitoring program will the CPG implement?	A WQMP was developed and submitted to the NJDEP for their review and comment. The subcontractor’s WQMP will be based on the technical specifications and the project’s WQMP. The dredging/capping subcontractor will be responsible for daily monitoring of TSS and turbidity at Buoys #2, #3, and #5, with Buoys #2 #3 used for trigger/action level monitoring. The CPG will also be collecting TSS/turbidity and COPC samples at Buoys #2 and #3 as well as Buoys #1 and #4 and RM 10.2. The CPG will be collecting daily TSS/turbidity samples and weekly COPC samples.



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38	10	Appendix E (previous Appendix D), Section 31 23 24, Part 1 – 1.01-C and 1.06-A-1-1	Appendix E, Technical Specifications	Please provide details of the controls/BMPs to be used to minimize the discharge of sediment and water from the barges during dredging operations and transport of the barges to the unloading facility. [Also see Appendix G, Section 4.3]	The requested details will be provided in the dredging subcontractor’s Dredging and Operations Plan, which will be provided to the NJDEP for informational purposes only prior to beginning construction.
40	11	Appendix G, Section 4, page 4-1	Appendix G, Community Health and Safety Plan	This section states that the monitoring activities presented in this section are a “summary of the details” included in Appendix I – but a review of the table of contents in the appendix did not identify any specific sections that address monitoring.	The WQMP, Perimeter Air Monitoring Plan, and LTMMMP will be provided separately. The CHASP has been revised accordingly.
41	12	Appendix G, section 4.8, page 4-6	Appendix G, Community Health and Safety Plan	River flow conditions that would result in a suspension of dredging and capping activities should also be noted. This section also references Appendix F – but a review of the table of contents in the appendix did not identify any specific sections that address weather-related conditions that would result in a suspension of work.	The CHASP will be revised accordingly.
Issues to Be Addressed in the Future/Other Documents					
19	1	Silt Curtain – Design and Operation (Section 4.4.4, page 4-9 and Figure 4-7)	Silt Curtains	CPG Response to Comment #11 states that the dredging subcontractor’s Dredge and Operation Plan will include the means and methods to install the silt curtains. This plan should also include provisions to minimize the dispersal of suspended sediment (SS) contained by the curtain during its removal – a maximum SS/turbidity level should be established, such that the curtain will not be removed until the SS level within the curtain has fallen below this level. [Also see Appendix E, Section 31 23 34, 1.06-A-1-a and 2.03.]	The subcontractor’s Dredging and Operation Plan will address the means and methods to install and maintain the silt curtain system. This will be provided to the NJDEP for informational purposes only.
20	2	Water Quality Monitoring – SS/Turbidity and COPC Correlation (Section 4.6.1, page 4-11)	Water Quality	In order to be fully protective of surface water quality, the correlation between SS/Turbidity (measured during routine monitoring operations) and COPC concentrations should be established. CPG Response to Comment #13 appears to state that RM 10.2 data collected in 2009 and 2010 will be initially used to do this – but also states that “The locations and frequency of the COPC sampling are being developed.” The process to be used to develop the SS/Turbidity-COPC correlation should be more clearly presented and provided to NJDEP for its review prior to the initiation of dredging operations.	The water quality data collected at RM 10.2 between 2009 and 2010 will be used to establish the initial relationship between TSS and turbidity. This relationship will be confirmed/refined during the dredging operations. The relationship between TSS and COPC will also be developed with these historical data.
21	3	Water Quality Monitoring – Adaptive Management	Water Quality	CPG Response to Comment #14 states that the WQMP will include “an appropriate decision management tool ... to assess the TSS-turbidity water quality monitoring data ...” It is also stated that “the text [presumably of the Draft Final Design Report] has been revised to indicate that a WQMP will be developed and utilized for the management of dredging operations.” However, the preparation of a WQMP (or Dredge and Operation Plan) are not addressed in the Draft Final Design Report (but see Appendix E, Section 01 45 55, Part 1 – 1.06-A and 1.06-D).	A draft WQMP has been prepared and was provided to USEPA/NJDEP on April 19, 2013, for review/comment. The subcontractor is also responsible for preparing a WQMP for their operations based on the project WQMP.

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22	4	Water Quality Monitoring – Methods and Data Quality Objectives	Water Quality	Additional detail is needed concerning the implementation of the surface water quality monitoring program; these are presumably to be included in the WQMP to be prepared for the project (see CPG Response to Comment #4).	A draft WQMP has been be developed and was provided to the NJDEP on April 19, 2013, for their review/comment.
35	5	Stabilized Dredged Material – Transportation Best Management Practices (Section 8.3, page 8-4)	Transportation Options	The mode(s) of transport for the stabilized dredged material (and barge decant water) to its disposal (treatment) facility has not been finalized. Thus, it is not possible to fully evaluate the potential impacts of this transport or to develop BMPs to minimize these impacts. These issues must be addressed and provided to NJDEP for its review prior to the initiation of dredging operations. [Also see Appendix G, Section 1.2.4 and Section 4.5]	The mode of transportation for the stabilized dredged material and associated wastewaters has been finalized. The stabilized material will be placed in lined containers and transported by truck to a rail transfer station, where the containers will be transferred to rail cars for final transport to the landfill. The containers remain sealed from the time they leave the stabilization facility until they arrive at the disposal facility. The text has been revised accordingly.
25	6	Section 7.1, page 7-1 and Section 7.5.1, page 7.9	Design Criteria and Construction Overview	Additional field work is to be conducted in April 2013 to determine upward seepage velocity and pore water COPC concentrations in the project area. The thickness of the active layer (including a Reactive Core Mat, if used) will be determined once the design of the active layer is finalized.	The report has been revised to include the pore water and seepage velocity data to be used for the final cap design.
31	7	Section 7.4, page 7-8	Cap Placement Equipment	The methods and equipment to be used to place the cap will be determined by cap placement contractor. A plan that details the cap placement operations should be developed and provided to NJDEP for its review prior to the initiation of capping activities. [Also see Appendix E Section 02 32 00; Appendix G, Section 1.2.3.2]	The subcontractor is required to develop a Capping Plan for review and acceptance prior to beginning capping operations. A copy will be provided to the NJDEP for informational purposes.
32	8	Section 7.9, page 7-12	Long-Term Cap Monitoring and Maintenance Plan	A long-term cap monitoring and maintenance plan is to be developed; this plan should be provided to NJDEP for its review. [See previous NJDEP comments on Appendix K in the Pre-Design Report (dated November 30, 2012)]	A LTMMP will be developed and provided to the NJDEP for their review/comment.
42	9	Appendix G, Section 5.2	Appendix G, Community Health and Safety Plan	It is noted that CPG indicates that Noise Limits and Monitoring will be addressed/resolved with NJDEP.	Noted.